Optimal sales team structure in software business

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The digital revolution directs today's companies' processes, business models and strategies. Organizations are purchasing and using software in greater numbers than ever to support their business. Digital services such as web and mobile applications have already become a natural way for companies to reach their customers. At the same time, enterprises are investing more in artificial intelligence and other futuristic technologies.

Meanwhile, the information technology industry is flourishing and customers' growing demand presents excellent opportunities to software vendors. However, the bright future of IT attracts even more firms to the industry and competition continually grows. Customers face a flood of information and a variety of suppliers - it is difficult for one software vendor to separate from the mass. This thesis attempts to find the optimal construction for a software company' sales team.

The primary research method in this thesis is a two phase semi-structured interview process that identifies sales best practices from software vendors and supplier preferences from customers. The interview results and background literature are used to build an optimal sales team in a specific business scenario. The optimal construction and other conclusions can be utilized by software companies.

The results show that a software company should utilize its whole staff in the sales process. Technology and domain experts alongside sales representatives are vital to the success of a case. The optimal contribution of the experts varies according to the nature of the business, technology and customer.

Keywords: software, B2B, sales, sales process

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Digitaalinen vallankumous ohjaa tämän päivän yritysten prosesseja, liiketoimintamalleja ja strategioita. Organisaatiot ostavat ja käyttävät ohjelmistoja liiketoimintojensa tukemiseen enemmän kuin koskaan. Digitaaliset palvelut, kuten verkko- ja mobiilisovellukset ovat jo luonnollinen tapa yrityksille tavoittaa asiakkaansa. Samalla organisaatiot sijoittavat yhä enemmän tekoälyyn ja muihin tulevaisuuden teknologioihin.

Samanaikaisesti informaatioteknologiatoimiala kukoistaa ja asiakkaiden kasvava kysyntä tarjoaa toimittajille erinomaisia mahdollisuuksia. Toisaalta IT-alan valoisa tulevaisuus houkuttelee toimialalle yhä enemmän toimijoita ja kilpailu kasvaa jatkuvasti. Asiakkaat kohtaavat informaatiotulvan ja lukuisia toimittajia - yhden ohjelmistomyyjän on vaikea erottua massasta. Tässä työssä yritetään rakentaa ohjelmistoyritykselle optimaalinen myyntitiimi.

Työn ensisijainen tutkimusmenetelmä on kaksivaiheinen teemahaastatteluprosessi, jossa tunnistetaan ohjelmistoyritysten myynnin parhaita käytäntöjä ja asiakkaiden mieltymyksiä toimittajista. Haastattelujen tuloksia ja taustakirjallisuutta hyödynnetään rakentamalla optimaalinen myyntitiimi yhdessä liiketoimintaskenaariossa. Optimaalinen myyntitiimin rakenne ja muut työn johtopäätökset ovat ohjelmistoyritysten hyödynnettävissä.

Työn tulokset osoittavat, että ohjelmistoyrityksen tulisi hyödyntää koko henkilökuntaansa myyntiprosessissaan. Teknologia- ja toimiala-asiantuntijat ovat myyntihenkilöstön ohella elintärkeitä tekijöitä kaupan saamiselle. Asiantuntijoiden optimaalinen kontribuutio vaihtelee liiketoiminnan, teknologian ja asiakkaan mukaan.

Avainsanat: ohjelmistot, B2B, myynti, myyntiprosessi

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Abbreviations

B2B	Business-to-Business
B2C	Business-to-Consumer
B2G	Business-to-Government
CAB	Change Advisory Board
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CIO	Chief Information Officer
COTS	Commercial Off-The-shelf
CRM	Customer Relationship Management
ERP	Enterprise Resource Planning
IT	Information Technology
ITIL	Information Technology Infrastructure Library
KAM	Key Account Management
MOTS	Modified Off-The-Shelf
RFP	Request for Proposal
ROI	Return on Investment
SaaS	Software as a Service
SCM	Supply Chain Management
SLA	Service Level Agreement
UI	User Interface
UX	User Experience

1 Introduction

1.1 Motivation

In the world of growing digital opportunities, the role of software in businesses becomes constantly more critical. Companies have been automating their core and support business processes for decades with a variety of enterprise software and now the demand for new smarter software solutions is increasing [27]. Practically every domain and business is or will be affected by the digital revolution. Microsoft's CEO Satya Nadella predicted in his 2015 speech at the company's annual Convergence US conference that "every business will become a software business" [33].

Nadella's comment, while merely a prediction, is already being validated today. Several of the most successful companies since 2005, are in the business of making software even though their customer value proposition is something entirely different. Facebook is the most well-known media in the world but does not create any content of its own. Über has become the world's largest cab company while owning no cars. AirBnB is the biggest accommodation services provider in the world and does not hold a single piece of real estate. These are merely three examples of corporations whose success is predicated on a wide and continuously developing software platform. [38]

To outline the scope of this thesis, we limit ourselves to examining a more traditional business scene: one company developing and selling software and another one purchasing and using it - a vendor and a customer. The customer organizations - software procurers - are characterized by two basic trends: (1) rising demand for new types of customized solutions [1] and (2) a growing technological competence [15]. On top of the traditional enterprise systems, such as *enterprise resource planning* (ERP) and *customer relationship management* (CRM) that have been around for years, companies are building a variety of digital services to better serve their customers and automate their internal processes.

Increasing demand for software presents prolific new opportunities to software vendors, there are several technology startups founded each day. But if software is becoming even more the center of the customers' strategy and, at the same time, the customers' technical competence is increasing, how are the vendors supposed to react? And more interestingly - from the point of view of this thesis - how does the vendor's sales function have to evolve?

Software vendors and their sales representatives face two facts: (1) there are more competitors and (2) the customers have more information available than before. In order to separate from the competition and win the customer's trust, a sales representative has to understand the complex need of the client and provide them with valuable information throughout the sales process. In addition, the customer's purchasing decision is not made by a single person. Instead the vendors go through

a strict review process participated possibly by the whole management team of the organization. The proposal of the vendor is evaluated from technological, financial and strategic aspects.

Businesses have traditionally completely dissociated sales and production departments from each other, meaning that a production employee's work does not begin until a new customer has been acquired by sales. This model, especially in the software industry and in particular due to the trends discussed earlier, has become predominantly obsolete. It is improbable, that a sales representative can single-handedly conduct a large IT deal from start to finish. A successful software venture is usually a joint effort between all of the vendor's employees from both sales and production.

This thesis looks into the co-operation between a software firm's sales function and other employees, including developers, architects and designers. The thesis attempts to determine how an optimal sales team should be constructed utilizing both the sales personnel and technical experts and business staff. We are going to look at different types of software, business models and customer cases and also identify if there are situations where the traditional model of a single sales person is still the most effective.

To get the customer perspective, we will find out the customer's opinion on what kinds of sales teams they prefer to operate with. Is their preference a team of experts with different proficiencies or a single sales representative as their liaison to the vendor? Again, we will explore how varying cases, business models and demands affect this preference. Ultimately, we attempt to build an optimal software sales team that addresses the ascending demand and growing expectations of the rapidly digitalizing customer organizations.

1.2 Research questions and objectives

The main objective of this thesis is to discover the optimal sales team structure for a software company. Furthermore, we will determine how different business models, software solutions and customers affect the optimal structure. To achieve these objectives, we examine the best practices of software vendors and the preferences of their customers.

Ultimately, the research aims to answer the following questions

1. How is the optimal sales team constructed using the diverse expertise of a software company's employees?
2. Which is the best approach for a software company: Develop hybrids (a person with deep enough technical knowledge and sales capability) or keep these roles different?
3. Which sales team structure yields the optimal customer satisfaction?

1.3 Scope

The thesis focuses solely on Finnish business-to-business (B2B) software companies and their customers. The geographical targeting is necessary to keep the scope small enough. Consumer software sales (business-to-consumer (B2C)) are excluded since their nature is often completely different. Both the B2B sales process of the vendor and B2B procurement process of the customer are discussed in the background part of the thesis. Business-to-government (B2G) is referenced a couple of times but is not considered to be in the scope of the thesis. Public procurement in Finland is different from the private sector since it is regulated by the public procurement law of Finland [12].

The empirical part of the research includes expert knowledge from 12 Finnish companies - 6 software vendors and 6 customers. The customer companies were chosen to represent large and middle-sized Finnish organizations with annual revenues of over 100 million euros. On the vendor side, different sized companies were chosen to get an idea of how the company's size affects its sales process. From the total of 6 companies, 2 can be considered small (revenues under €10 million), 2 were middle-sized (revenues between 100 million and 200 million euros) and 2 were large enterprises (revenues over €500 million). [37]

1.4 Research methods

The main research methods used in this thesis are semi-structured interviews and a literature review. The people interviewed during the empirical research were sales and IT professionals from Finnish companies. Two interview rounds were performed - one for the software vendors and another one for the customers. The interviews favored open-ended questions to promote additional questions and conversation with the respondents. The interview results were utilized in the analysis part of the thesis.

The literature review references several sales books and software industry articles. The primary concepts discussed from literature are the B2B sales process and a software company's staff. Also, some additional models and concepts are provided to complement the literature review. These concepts are based on the experience of the author as the sales director of a Finnish software company Avarko Oy.

Lastly, the results of the empirical research and literature review (with additions) are analyzed. The analysis is used to build an optimal software sales team in a certain business scenario. To understand the optimal structure, we walk through a full sales process and discuss the best practices and employee roles in each phase.

The main phases of the research process were:

1. A literature review of the B2B sales process and software business
2. Interviews

- Vendor interviews: Semi-structured interviews with directors from Finnish software vendors
- Customer interviews: Semi-structured interviews with IT-Directors from Finnish companies

3. Additional literature review and complementary concept presentation
4. Qualitative analysis of the literature review and empirical research results
5. Optimal sales team construction in an isolated business scenario
6. Discussion and conclusions

1.5 Thesis structure

This thesis consists of 6 chapters, chapter 1 being the introduction. The introduction presents the motivation behind the research and the primary research methods and processes. Chapter 2 gives the background for the research, discussing B2B sales and software business from different aspects.

Chapter 3 is the empirical part of the thesis, it presents the results of the expert interviews. In addition, the section introduces some complementary concepts and models. The results of the empirical research are utilized in chapter 4, *Building the optimal sales team*. This section goes through a sales process discussing the best practices and sales team configuration along the way. In the end, chapter 4 constructs an optimal software sales team in a certain business scenario.

Chapter 5 discusses the validity of the results presented in the thesis and reviews the feasibility of the research and analysis methods. The section also evaluates future research possibilities in this area. Finally, chapter 6 presents the conclusions of the research.

2 Background

2.1 B2B sales process - the traditional model

Business-to-business (B2B) sales differ significantly from their business-to-consumer (B2C) counterpart. Commonly, B2B deals are longer in duration, involve more decision making and stakeholders, have less potential customers and are larger in monetary value than in B2C [3]. Business activities between two companies are based on strong relationships that have been building for a long time. Consumers have - in some cases extremely strong - brand loyalty as well but still B2C purchasing decisions are more of the spontaneous nature [17].

The definition of the B2B sales process varies between industries, companies, products and solutions. Limited academic research has been performed on classic business-to-business sales and the B2B sales process is therefore not explicitly defined in prior research. To get some benchmark, we combine material from two popular sales books: *SPIN Selling* (1988) by Rackham et al. [32] and a newer book *The Only Sales Guide You'll Ever Need* (2016) by Iannarino [20]. Following and modifying Rackham et al. [32] and Iannarino [20], a model for the six stages of the traditional B2B sales process can be defined as:

1. Prospecting
2. Initial contact
3. Meeting(s)
4. Request for proposal (RFP)
5. Proposal
6. Closing the deal

These are some of the steps that every new sales case goes through. Obviously, some deals end before they reach step six, for instance if the customer loses interest before that. Other cases do not have to go through the whole process, starting for example at the request for proposal (RFP) stage (this is common when the customer is familiar with the vendor). Here we present the process for a new customer that the vendor has not had dealings with previously. When we discuss *vendors and customers*, we are doing this on an organizational level and not yet singling out individual employees from these organizations. This section is written from the point-of-view of the vendor.

The first phase of the B2B sales process, *prospecting*, means searching for new potential customers for the company. Vendors do this by either simply approaching interesting companies and people or creating marketing content that invokes the customer's interest and induces the customer to contact the vendor themselves. These two ways of marketing are called *outbound* and *inbound*, respectively [16]. Contemporary vendors are opting more towards inbound since it is more personal

and yields a stronger interest from the customer to begin with.

Inbound marketing attempts to attract the attention of potential customers with videos, blogs, whitepapers and performing in public conferences [16]. Outbound is more straightforward and approaches a mass of prospective clients with the same marketing message. Telephone, e-mail and the Internet are the most popular outbound marketing channels in B2B. Outbound suffers from its in-personality but its advantage over inbound is that it requires less resources and time [16]. Either way the marketing is performed, its goal is to find potential customers, *prospects*, for the vendor. A prospect, in this context, means an employee of a potential client company.

The prospect becomes the input of the sales process and the vendor contacts him or her - usually by telephone or e-mail. This is the second phase of the sales process, the *initial contact*. Simply put, the initial contact's objective is to set up a situation where the vendor's representative can meet the prospect, get acquainted and discuss business [20]. The challenge is to invoke the prospect's interest during a short time window. A phone call to a new prospect typically lasts up to two minutes, during which the sales representative has to convince the prospect why they should meet. Successful inbound marketing helps the vendor since it raises the prospect's interest before the initial contact [20]. The prospect might have subscribed to the vendor's news letter or read a blog on the vendor's website and can even initiate the conversation.

The next stage of the sales process is (after the vendor has successfully arranged a meeting with the prospect), the *initial meeting*. In this thesis, we concentrate on a business landscape where the initial meeting happens face-to-face though a large portion of B2B business has transitioned to the web. In fact in 2013, the world's B2B electronic commerce (ecommerce) sales were double the size of B2C online sales [10]. B2B software is also being sold online but a majority of B2B solution business in Finland is still done in a face-to-face manner [31] (we will discuss solution and product business models in section 2.3). Depending on the complexity level of the product or solution and the size of the deal, this stage can consist of 1-10 meetings and occupy over one year of calendar time [32].

The amount of details discussed in the first meeting depends on how well the vendor and customer know each other beforehand. Typically in the case of a new prospect, the initial meeting's primary agenda is for the participants to get acquainted and discuss their respective companies and business environments. The vendor's representative in the first meeting is usually a sales person. (In this thesis, we use the title *sales manager*. We discuss the vendor's employees and their roles more thoroughly in section 2.4.) The sales manager's objective, apart from getting a new contact, is to attempt to understand the prospect's situation and to find a need or a problem that the vendor could provide a solution to. Rackham et al. have created a widely used model for questions that sales managers use to discover needs and problems: *situation, problem, implication, need-payoff* (SPIN) [32].

After the sales manager has detected a need or a problem, he or she has to convince the prospect that the vendor is able to provide a solution. The vendor will construct a written proposal later in the sales process - for now, the sales manager attempts to gain more information about the situation and to convince the prospect verbally. References, i.e. previous solutions created for other customers, play a large role in this stage. It raises the credibility of the vendor in the eyes of the prospect if they have already solved a similar problem with their existing customer. Once the vendor has sufficiently convinced the prospect, they will give out a verbal or written *request for proposal* (RFP). [32]

The RFP is a request for the vendor to specify (1) how they would solve the situation, (2) how much time and resources the solutions requires and (3) how large financial investment is required from the customer [30]. The RFP's style and extent depend on the complexity and scope of the situation. For a small one-off problem the customer can verbally request a single vendor for a simple solution. For larger new ventures with monetary of over 100 000 euros, the customer composes a written RFP that contains multiple pages and requests proposals from several (usually 5-10) vendors [30]. Public sector RFP's can be responded to by any vendor [12].

The anatomy of an RFP is presented more accurately in section 2.5. Here are listed the sections of a written request for proposal by Porter-Roth [30]:

1. Project overview and administrative information
2. Technical requirements
3. Management requirements
4. Supplier qualifications and references
5. Suppliers' section
6. Pricing section
7. Contracts and license agreements section

The vendor answers the RFP with a *proposal*. The proposal consists of the vendor's view of the situation, the details of the suggested solution and the predicted benefits to the customer. *At least, the proposal has to answer all the questions in the RFP.* The proposal is, almost with no exceptions, written and includes an expiration date, after which it is no longer valid.

Apart from merely sending the proposal out, a good practice is to set up a meeting to present the proposal [20] and answer the prospect's questions [32]. In the presentation the vendor's representatives have a chance to affect the customer with their personality and presentation skills.

After the proposal is presented, the prospect and vendor agree on a date when the prospect makes a decision on whether or not to invest in the vendor's solution. Again, a good practice for the seller is to set up a meeting for the decision day thus having one more opportunity to influence the buyer before the decision is made [20]. Vendors call the practice of getting a decision out of the customer *closing* which is the final stage of the sales process. At this time, the vendor has to have an understanding of what the prospect feels is the largest risk in the procurement [32]. Typical risk factors are, for example, vendor's limited resources, solution's high complexity or macroeconomic uncertainties. Upon understanding these liabilities, the vendor attempts to lower the prospect's sense of risk. *Only when the estimated benefits exceed the assumed risks, will the prospect make a decision to purchase* [20].

If the prospect decides to trust the vendor and agrees to make an investment, the prospect becomes a *customer* to the vendor. Similarly, the vendor becomes a *supplier* to the customer. After the customer and the supplier agree on a deal, they still have to negotiate a contract of the delivery. Contract negotiation is technically part of the sales process but in this thesis, we end the process to a verbal agreement of co-operation. [20]

In this section, we have presented the traditional model for the B2B sales process which we will use as a base for our analysis of the optimal sales team structure. The traditional model, however, has some limitations which we will discuss and supplement in section 3.3. The flow chart in 1 illustrates the activities between the vendor/supplier and prospect/customer during the sales process.

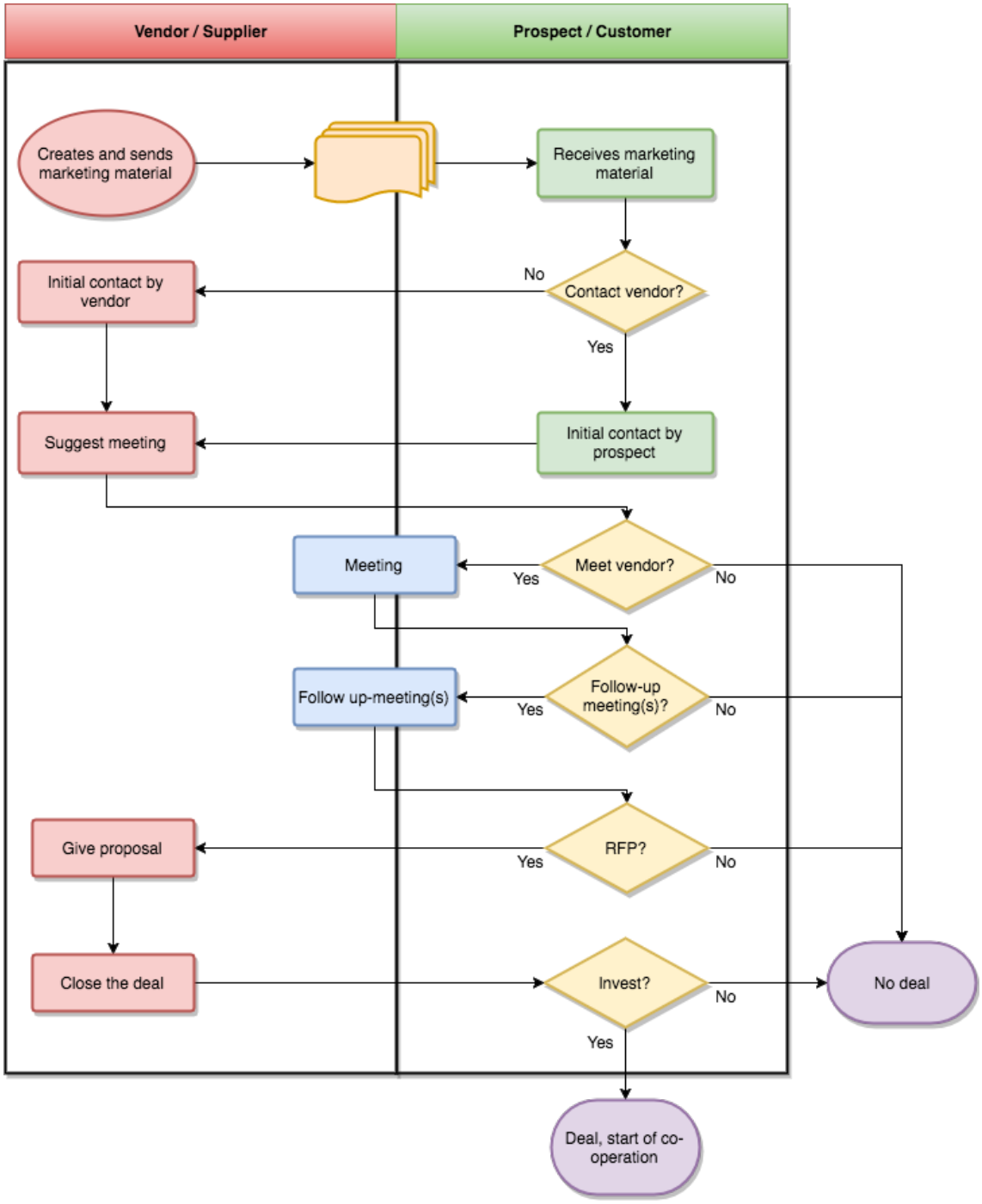

Figure 1: B2B sales process

2.2 Key Account Management

The sales process presented in the previous chapter describes the case of a newly acquired customer, meaning the customer and vendor have had no communication prior to the initial contact. Depending on the industry the complete sales process can last for over a year. However, the process can be much simpler if the purchasing company is already a customer of the vendor, i.e. the vendor is a supplier. Often when a supplier has successfully delivered the initially proposed project or, in other words, if the supplier and customer have an existing business relationship, the customer simply orders additional services from the supplier and does not send a formal request for proposal to others. A reasonable customer almost always drafts an RFP, especially for large new ventures, but it is usually worth saving the time simply ordering the solution from a reliable and tested supplier.

Since the sales process is shorter with existing customers, vendors should concentrate on building strong and prolonged relationships with their clients. The vendor profits more from maximizing the value of a small amount of customers than delivering isolated projects to a large number of clients. Estimates say that it is 4 to 10 times more expensive to acquire a new customer than to keep an existing one [23]. Vendors call the activity of managing supplier-customer relationships and maximizing the client's value *account management* - and in the case of particularly important clients *key account management* [41].

The vendor's employee who is responsible for managing the key accounts is called a *key account manager* (KAM). A KAM's first task is to determine whether a customer company should be promoted to key account status. A key account is typically a customer with strategic importance to the vendor, meaning that the loss of the client would significantly harm the vendor's business. Some key account characteristics are large size, stable business, strong balance sheet, prospect for future growth and demand for the vendor's offering.

A KAM has to insert himself or herself in the customer's organization. The KAM understands the domain and business processes and knows the right people of the customer [41]. If the KAM performs well, the customer might even involve the vendor in their strategic decisions. Some of the tasks a KAM can perform to analyze the client organization are [41]:

- Determine the value of the account
- Identify the decision makers and influencers of the customer
- Identify what types of additional business could be done with the customer

Determining the value of the account means contemplating weather the customer actually has to be raised to key account status. Factors to consider are size of business (revenues and employees), profitability, staff, inner policies and future potential. To put it simply, *KAMs look for customers that are likely to purchase the vendor's*

services in large amounts for a long period of time. Likelihood to purchase more is affected by all of the aforementioned factors. A company with small business or a large company operating at a loss are unlikely to order plenty of additional services. Difficult staff or a complex purchasing process complicates supplementary sales. In addition, the KAM has to consider the customers domain: Does it have future potential and is it an industry the vendor wants to do business in? [41]

The decision makers and influencers mean the people from the key account's organization that make business decisions and influence them, for example whether or not they should invest in a new piece of software. A KAM should be especially interested in the people that affect the purchasing decisions that involve the vendor. Recognizing these employees and understanding their preferences and roles in the decision making process is crucial since, as we mentioned in chapter 1, purchasing decisions are rarely made by a single employee. The vendor's new proposals have to satisfy all the people involved in the decision making. [41]

A *decision maker* usually sits in middle management or higher. They are the employees that sign new contracts and ultimately determine if a purchase is made. Vendor's new proposals should be targeted primarily towards these employees. However, *influencers* can sometimes have a strong impact on the decision. An influencer is an employee, typically an end-user or an expert, that is consulted during the purchasing process but does not make the actual decision. The vendor has to be aware of who are the people that influence the evaluation of new proposals. A good tool for a KAM to recognize the decision makers and influencers is to draw up the customer's *organizational chart* and to identify the people and their statuses in the organization. This helps the KAM to keep track of who are the customer's decision makers and influencers, how good is the KAM's own relationship with them and what types of preferences these people have. An example of and organizational chart with the decision makers and influencers denoted, is found in Figure 2. [41]

Additionally, the KAM should analyze the key account based on the vendor's own offering and additional services the client could purchase. A tool used in this is called *white spot analysis*. Similarly to the organizational chart, the white spot analysis is a visual tool. It divides the customer's business divisions into two sections: (1) divisions that the vendor is supplying to and (2) divisions the vendor is not supplying to. White spot analysis also represents what parts of the vendor's offering (products or services) are being supplied to the divisions. Thus, a white spot analysis helps the KAM to identify which devisions could be targeted for additional sales. An example of a white spot analysis is found in Figure 3. [41]

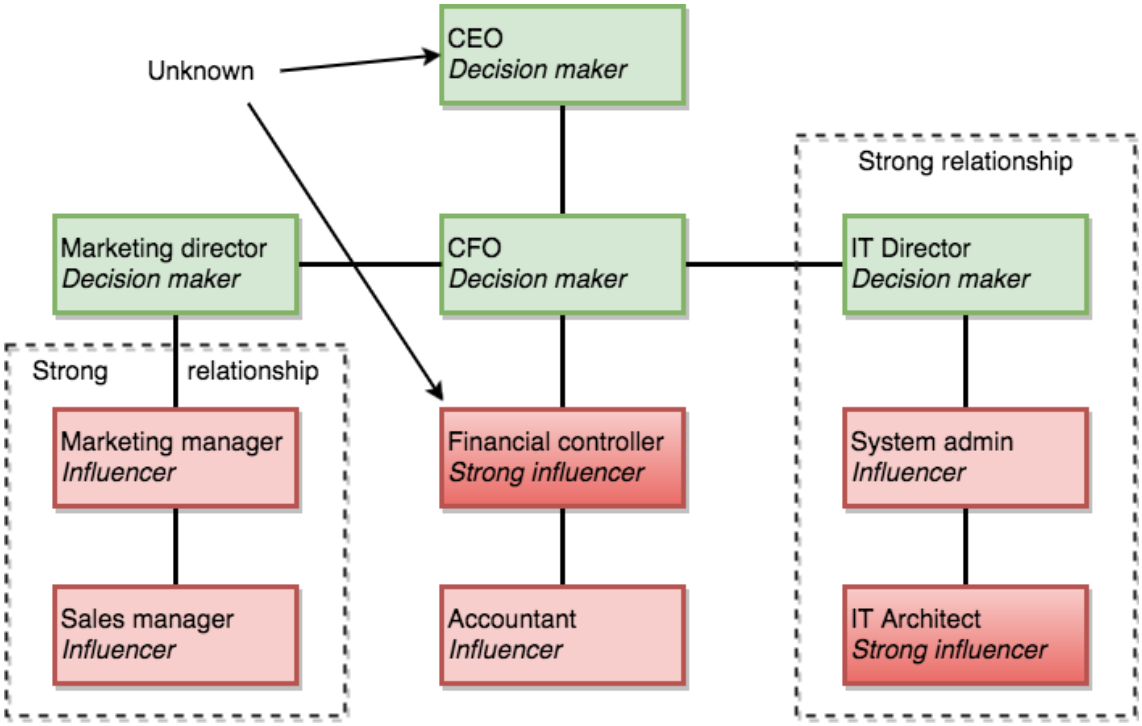

Figure 2: KAM organizational chart - Influencers and decision makers

	Division 1	Division 2	Division 3
Product A	In use	In use	Not in use
Product B	Not in use	Not in use	In use

Target divisions 1 and 2 with product B.
Target division 3 with product A.

Figure 3: White spot analysis

2.3 Software business models

This section looks into the various business models of software companies based on the types of software they produce. We compare the development methods, complexity and pricing principles of the different models. The four software businesses presented here are product, solution, resource and support.

2.3.1 Product

The software product business model is, in an abstract level, the same as in any product business. A software product vendor develops its products and markets and sells them to their customers. This means the point of sale happens after the development, as depicted in Figure 4. Examples from B2C software include Microsoft Office, mobile applications and antivirus software. In B2B (within the scope of this thesis), software products can be categorized into *commercial off-the-shelf* (COTS) and *configurable products*. [22]

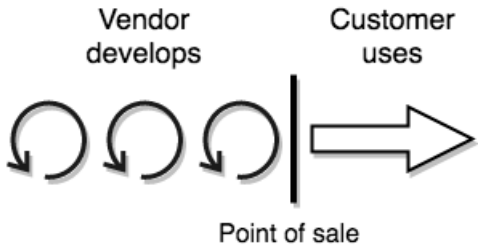

Figure 4: Product business - Point of sale

Commercial Off-The-Shelf
COTS products are the simplest software for a customer to purchase. They are finished products, that the customer just downloads and installs. In the case of very large software the installation process might require help from the vendor's representative but typically COTS products are designed to be bought with zero human interaction. Today, good examples of COTS software are mobile applications (apps) distributed through an application marketplace such as the Apple's AppStore or Google's Play Store. A customer can pay a one time bill for COTS products or they can be priced according to a license model (pay per use, for example a monthly fee). License pricing is commonly used today especially with software as a service (SaaS) products. [40]

Configurable products
Configurable products are developed by the vendor just like COTS, but a key difference is that they are configured to suit the varying business needs of each respective customer. That means every customer purchases the same product but it is configured differently. Configurable software is favored by large business system manufacturers such as *enterprise resource planning* (ERP) and *supply chain management* (SCM)

vendors. Similarly to COTS, the customer pays for the implementation or use of the software but in this model, the vendor receives additional revenues from the configuration project. The project can, for example in the case of a large ERP implementation, take several years. Configurable products are sometimes called *modified off-the-shelf* (MOTS). [29]

2.3.2 Solution

The main difference between solution and product sales is that a solution is developed from the beginning to meet the specific need of a customer - no two solutions are exactly the same. In this case, the result of the sales process is a *software project* whose outcome is the custom software solution as requested in the RFP (see section 2.1). It is already evident that the sales process of a solution vendor is longer than the process of a product manufacturer. With the sales of customer solutions, a large part of the proposal is specifying the solution and estimating the costs and duration of the project. As opposed to product business, the point of sale happens before the actual software development, as Figure 5 illustrates. A custom software solution can be anything from a new web portal or mobile application to system integration.

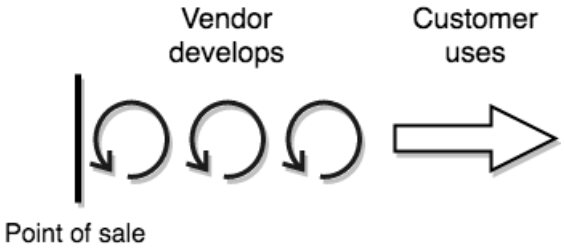

Figure 5: Solution business - Point of sale

The software project can be priced in three different ways: *fixed price*, *time and material* or a *hybrid* model. Fixed price means the vendor agrees to deliver the solution at a predetermined price regardless of the time and resources spent. The vendor carries the larger risk in this model and should not commit to it unless the workload and customer requirements have been made abundantly clear in the system specification. In the time and material model, the vendor charges an hourly rate based on the amount of work carried out during the project. Now the customer is carrying the larger risk since the project can turn out to exceed its budget. The hybrid model is a combination of the two pricing principles. It is applied differently in individual cases - usually the vendor and customer agree that one part of the project is delivered for a fixed price and the rest is done based on a time and material model. [14]

2.3.3 Resource

A *resource vendor* is a software firm that sells developers and other professionals for customers to use in their own projects and product development. These companies (often called brokers) conduct their business in a similar manner to a recruitment company - they find suitable developers and other experts and broker them to customers. In this case, the customer has software development personnel of its own. The resource vendor charges the customer based on the hourly work (time and material) of the developers. [11]

In the resource business the customer purchases outside developers to work in their own development team, as in Figure 6.

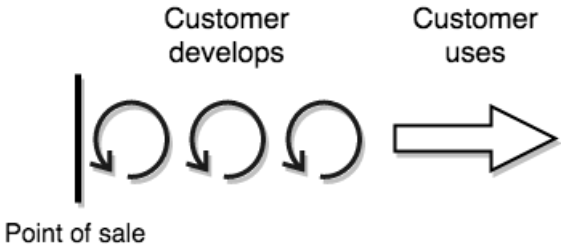

Figure 6: Resource business - Point of sale

2.3.4 Support

Software support services are provided for customers during the use of an application. When an application runs in production, different types of problems such as service interruptions, bugs and locked passwords occur. For these types of malfunctions, the manufacturer of the software, or a third party, offers support personnel that react to problems reported by users and solve them. The support personnel commonly operates in a *service desk* which users can contact to report malfunctions. Support services are priced by a combination of a fixed monthly fee and an hourly rate of the support personnel. The price of support depends on the *service level agreement* (SLA) of the software. [34]

Most software companies are not strictly in one business model and employ all of the models presented here: product, solution, resource and support. The software support business is illustrated in Figure 7.

2.4 Software company employees

2.4.1 Technical staff

Software developer
Traditionally called *software engineers* or simply *programmers*, *software developers*

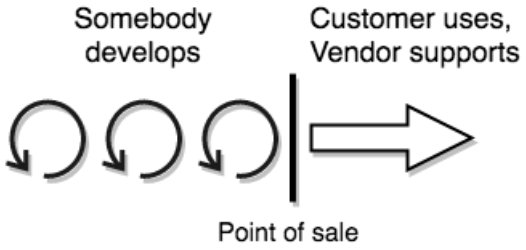

Figure 7: Support business - Point of sale

are the core competence of a software company. Developers are responsible for writing the software products and solutions manufactured by the firm. They are usually organized in teams according to project, product or technology. A development team is managed by a *project manager*, lead developer or a *scrum master* (a role made popular by agile methodologies). Developers are found in various areas of expertise depending on technology (programming language, framework or operating system), types of software (for example mobile applications or web services) and level of architecture (user interface, server side or middleware). [5]

Architect
As developers are responsible for the actual writing of the software code, employees that design the functionality of the solution are called *architects*. An architect is mostly involved in the planning process of the software typically interacting with the customer both understanding the customer's preference and directing the client with their technical expertise. Like developers, architects have their own special know-hows, for example integration or microservices. An architect can also function as the head of a development team. [5]

Designer
A designer is responsible for the software's user interface's (UI) visuality and usability. Similarly to an architect, a designer is most involved in the planning stage of the development process. Designers make sure that the UI is developed according to the customer's wishes and that it is easy for the user to operate. The development process typically starts with a layout picture drawn by a designer. The developers then write the software according to the initial layout. [5]

Data scientist
The term *data scientist* has existed for over thirty years, but the role in its current meaning is only now being adapted by software companies [8]. The term is used sometimes interchangeably with the word data analyst. A data analyst is a person with relatively deep technical knowledge and typically programming skills. An analyst is proficient at operating with different data sets on the technical level. A data scientist, however, combines the technology knowhow with business acumen and customer insight and is therefore more involved in the business decisions than a data

analyst [6]. Not every company employs data scientists but contemporary software projects usually include some form of *big data* and analysis.

Test engineer
An integral part of software development is testing and quality assurance (QA), i.e. making sure that the software functions in the desired manner, meets the business and technical requirements, is compatible with integrated systems and performs to required standards. A *test engineer's* tasks include [28]:

- unit testing
- system testing
- integration testing
- performance testing
- regression testing
- user acceptance testing (UAT)

Support and operations
Support and operations personnel is located at a very late stage of the development process, that is after the system has been deployed to production. Support ensures that the system runs as desired and fixes problems that arise during production. In most cases, the vendor and client agree on the support of the application in addition of its development. The support agreement has a certain Service Level Agreement (SLA) which states for example how much downtime the software is allowed to have and how quickly a service request should be resolved. The vendor typically organizes a service desk where the customer can report application problems. The support personnel then fixes these problems according to the SLA parameters. The support team is organized and managed by a *service manager*. [34]

2.4.2 Business staff

Project manager or Product manager
A *project manager* is sort of a hybrid between the technical and business staff acting as the leader of a development project making sure the development team functions correctly. The project manager also makes sure the project is finished in time, stays in budget and has enough resources allocated to it. Depending on the type of business the company is in, the project manager can also be a *product manager*. The product manager is responsible for the development of a certain product. Naturally, a product manager is more common role in a product development company and project managers are employed more by solution vendors. [5]

Sales manager
At the business side, the person who initiates most of a company's new business is called a *sales manager*. Sales managers are also referred to with other titles, for

example sales representative, business manager or consultant but their primary role remains the same: produce new leads for the company and turn them into customers. A sales manager is responsible for steering the customer through the sales process starting from the prospect and finally closing the deal.

Companies have organized their sales departments in various ways. While some modern organizations have brought the sales team to a close co-operation with production, some more traditional companies opt to keep the departments strictly separate. Typically the sales department consists of sales managers and other assisting sales people, for example sales assistants or *a presales function*. The assisting employees perform simple and repeating tasks allowing for the sales managers to concentrate on the more demanding account management and sales activities.

Like other employees, a sales manager can have different areas of expertise and varying responsibilities. Especially in a large company, the sales department is divided into teams, where one sales manager or team is responsible for a certain product, technology or customer. The whole department is lead by a *sales director*.

Other employees
In addition to these roles, a software firm employs business and support personnel like any other company. This staff includes financial, human resources (HR) and legal employees. They provide support services but are not included in the everyday development of software, i.e. they do not participate in the primary business of the company.

Software company employees are listed in Table 1.

Table 1: Software company employees

Technical staff	**Business staff**
Software developer	Project manager
Architect	Service manager
Designer	Sales manager
Data scientist	Legal
Test engineer	Administration
Support and operations	

2.4.3 Evolution of software development

This section of the thesis has presented a very traditional division of roles in a software company - a division that has been around since the 1990s which was the era of the first large enterprise systems. Back then, the software development process followed a very strict workflow and had separate roles for each participant. Roughly

put, the process was (1) a customer specified a system, (2) sales people negotiated the financial terms, (3) an architect designed the system's functionality and technology, (4) a designer drew up the user interface, (5) software engineers programmed the system and finally (6) test engineers tested it. After this the system was handed out to production and a support function. This model is commonly known as the "waterfall". [35]

The waterfall has since been largely abandoned as ineffective (although it is still used) and several companies have adopted a more agile type of workflow and unified some of the employee roles. In an agile software firm, the development happens iteratively and in short cycles - in each cycle (often dubbed *sprint*), a small fraction of the system is designed, developed and tested. The customer is involved in every sprint. Adaptation of agile methodologies has resulted in quicker reaction to problems, shorter development times and higher customer satisfaction. [2]

Alongside the shift from waterfall to agile, companies - both vendors and customers - have started favoring *open source* technologies. Open source software's source code is freely available for anyone to use and develop as opposed to *proprietary software* which is owned and distributed by a single entity (usually a software corporation) [25]. Examples of famous open source technologies are Linux operating system and Mozilla Firefox Internet browser. The increasing popularity of open source has decreased the number of so called *vendor lock-ins*. A vendor lock-in is a situation where a customer uses proprietary software in a business critical function. The customer cannot get rid of the vendor since they are the only company than can develop and support the software. Furthermore, the customer typically has to pay a license fee for the software. Open source is free for use by anyone and therefore requires no license payments.

In addition to the change in methodologies, the employee roles are no longer kept strictly separate. Much of the roles overlap and employees work in hybrid positions. Developers take part in the design phase with architects and designers while architects write software code in addition to planning it. Test engineers can participate in the development of software and vice versa. Also the support and operations functions are blending in with development - a practice used in DevOps methodology [18]. DevOps is used successfully in situations where a system is running in production while it is continuously developed.

2.5 Software procurement

2.5.1 B2B Procurement process

The B2B procurement process is the customer side counterpart of the B2B sales process that was presented in section 2.1. The procurement process consists of the phases the procuring organization goes through when evaluating and buying new products or services. Similarly to the sales process, the procurement process changes with the size and type of the business, as well as the size and type of the deal. Here

we present the B2B procurement process, modified from Loebbecke et al. [24]:

1. Recognize need
2. Product specification
3. RFP
4. Proposal analysis, supplier selection
5. Negotiation
6. Order specification
7. Vendor assessment using metrics

Procurement always starts with *need recognition* [24]. Somebody within a company or an outside observer notices a need for development in some process, product or service. Usually when the solution is related to software, the need is to automate some manual process with a technological solution. The need recognition can also emerge from a conversation with a vendor, looking back at section 2.1.

Once the company has recognized the need or problem, they begin specifying the requirements and looking for a solution. In many cases, the company is not able to solve the situation with its own resources (especially if the solution is not part of the company's core business) and therefore seeks external help. The company meets vendors and asks them for an opinion on how to solve the situation. They have not yet created a formal RFP in this stage - the company is merely evaluating vendors and their abilities to deliver a solution. [24]

After the situation and need have been specified, the company sends out requests for proposals to a selected group of vendors. The vendors are usually firms that have been involved in the need recognition and product specification phases but can also be others (for examples vendors that the company has dealt with before). The vendor list consists of 2-10 companies depending on the size of the procurement. Evaluating more than 10 proposals would become an overly laborious task. (Although, as mentioned in section 2.1, public sector's requests for proposal can be answered by any company.) The RFP guidelines by Porter-Roth [30] were listed in section 2.1, here they are presented in further detail.

Project overview and administrative information
General information about the RFP's creator (purchasing company)
Outline of the company's situation and need
Purchasers contact information for vendors

Technical requirements
Software's technical guidelines and limitations

Software's compatibility requirements with the purchasers existing technology architecture

Management requirements
Software's business requirements

Supplier qualifications and references
Vendor's previous work in the domain
Vendor's reference customers (possible contact information)

Suppliers' section
General information about the vendor

Pricing section
Solution or product price
Project work estimate and budget
Software's cost of usage

Contracts and license agreements section
Software's legal requirements

As we discussed in section 2.1, the vendors answer the RFP with proposals. Once they arrive, the procuring company starts a process of analyzing all the responses and selecting the most suitable supplier. Factors to consider in supplier selection are company size, brand, references, price and credibility. Personal preference also plays a large role, although companies attempt to limit the effect of human emotion in procurement. The outcome of this step is a shortlist of 2-3 vendors drafted from the initial larger vendor pool. [24]

Next, the company sets up further meetings with the vendors on the shortlist. The company makes sure that the vendors have understood the RFP correctly and are willing to operate according to their proposals. Finally, the customer selects one vendor from the shortlist. [24]

In the order specification stage, the customer and supplier agree on the delivery and sign a contract. After the project or product has been delivered, the customer continues to evaluate the vendor's performance, i.e. measure the procurement's success. Different types of metrics such as SLA and budget objectives are used to evaluate vendors. [24]

2.5.2 Software procuring personnel

Almost every contemporary company has an employee called the *chief information officer* (CIO). The CIO is a senior executive responsible for the organization's information technology and computer systems that support the organization's business

objectives. Today, with the growing importance of technology, the chief information officer often sits in the board of directors reporting directly to the CEO. However, the CIO can also be a subordinate of the *chief financial officer* (CFO). [19]

The chief information officer is ultimately responsible for new technology procurement (hardware and software). The CIO makes sure that the new software is (1) in line with the company's technology strategy, (2) compatible with the company's existing software and (3) inexpensive enough not to exceed the firm's IT budget. Depending on the individual and the organization, the CIO can be more of an administrative employee or a developer that drives new digital development ventures. [19]

While the CIO is somehow involved in almost every software procurement decision, he or she by no means initiates all new digital development in the company. Novel development ideas typically rise from the business units and the head of the unit or one of their subordinates. New procurement decisions usually involve employees from both business development and IT. At the business side, the main responsible person is a business development director or one his or her subordinates while the CIO or a subordinate (IT manager, system manager etc.) controls the IT. Business development handles business requirements, specifications and communication with vendors while IT is responsible for technological compatibility and the IT budget. [19]

As we mentioned in chapter 1, the customer's procurement is organized into a team that employs personnel from both business and IT. Large corporations commonly use some standard operational model for software procurement and vendor management such as the *information technology infrastructure library* (ITIL). The ITIL framework is a set of practices that focuses on aligning IT services with the needs of business, a big part of which is management of vendor relations and new procurement. One of ITIL's best practices is a *change advisory board* (CAB) that evaluates every new software venture of the organization. The CAB is made up of both IT personnel and business representatives. [4]

While the final purchasing decision is made by the CAB or the board of directors, usually a lot of different employees inside the organization are consulted before the decision. When a company considers purchasing new software, usually technical experts and future end-users will be interviewed. The technical experts are consulted to make sure that the company's current software architecture supports the novel solution. The end users are the ones that, in the end, have to use the software and therefore influence the specification of the solution. Here we see the distinction between the decision makers and influencers in the customer organization, as discussed in section 2.2.

3 Empirical research

3.1 Expert interviews

In order to obtain both the vendor and customer opinions and understand their preferences, the interviews were performed in two stages:

1. Vendor interviews
2. Customer interviews

The goal of the vendor interviews was to gain knowledge of the best practices Finnish software companies use in their sales processes and to find out how they utilize non-sales personnel in the process. Another objective was to discover how different scenarios, for example product vs. solution business model, affects the sales team structure.

The customer part of the interviews was performed to understand what types of sales teams result in the optimal customer satisfaction. The customers were inquired, for instance, if they prefer to operate with a diverse sales team (sales personnel and experts) or a single sales person representing the vendor. Customers' answers were then reflected on the vendors' responses to find improvements in their sales strategy. The results from the interviews and the further study done in section 3.3 are utilized in the analysis part (chapter 4) of this thesis. The research process is illustrated in Figure 8.

It turned out that reliable numerical data was difficult to obtain from the interviews due to several variables and uncertainty in the answers. Major obstacles to gathering exact numerical data were the open-ended nature of the questions and the fact that, according to the interviewees, the best practices and sales team structures they use are different in varying scenarios. The scenarios included, for instance, existing vs. new customer and large vs. small deal size. For these reasons, the research focused solely on the qualitative aspect.

The qualitative approach attempted to find out some of the best practices that vendors use and to discover how the practices and sales team structures change in the different business scenarios. At the customer side, the goal was to get feedback and understand whether the best practices used by the vendors were something the customer actually fancied.

3.1.1 Vendor interview

During the first round of interviews, a total of 6 Finnish software companies were questioned. The company sizes ranged from one small agile development firm with revenues under 10 million euros to middle-sized publicly traded companies to one large multinational Finnish software vendor. While several of the companies conducted business outside of Finland, the primary source of revenue for each company

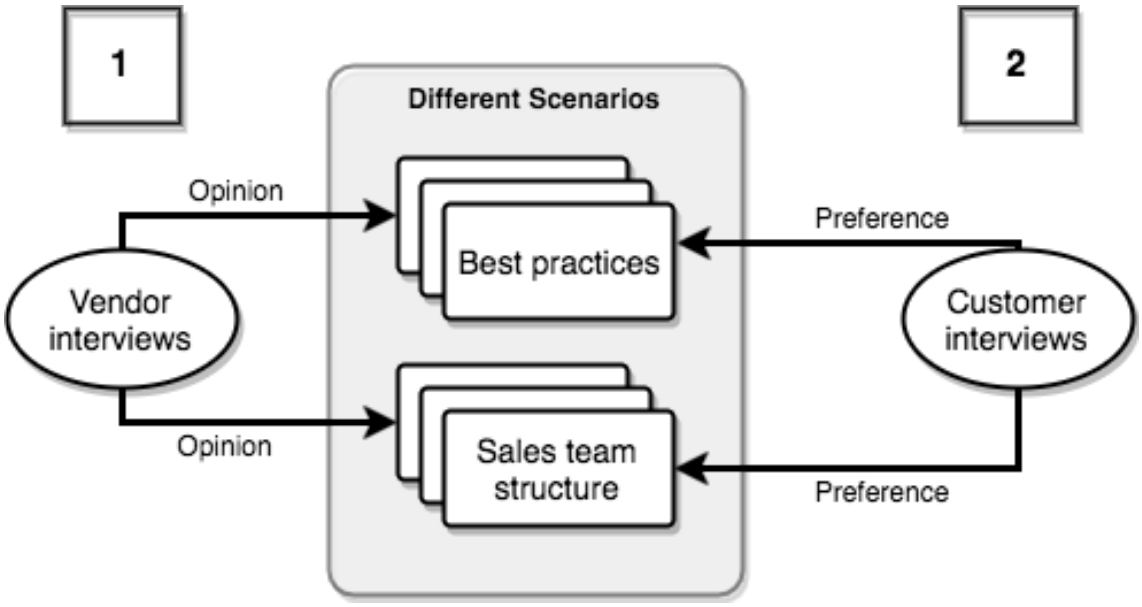

Figure 8: Interview structure

was still Finland. All of the vendors had clients from the private and public sector but, as stated earlier, this thesis focuses on private sector ventures. An average customer was similar for each vendor - a large or middle-sized Finnish corporation.

The interviewees were business and sales directors from the companies each with a P&L (profit-loss) responsibility and accountability for the performance of a sales team. Three of the interviewees were more directly involved in the sales process (participating in client meetings and performing other day-to-day sales activities) while the other three were executives that managed their subordinates and developed the sales process. Each interviewee had more than 10 years of experience from sales and the IT industry.

The questions started with asking the interviewees about the nature of their business and the size of their sales force with the purpose of obtaining an understanding of the company's sales volume. This was followed by more exact questionnaire about the structure of their sales teams and how different team members (sales personnel and experts) contribute in sales. Lastly, the interviewees were asked whether they felt it better to keep the sales team roles apart or to try and concentrate all the knowledge into a single sales representative.

The questionnaire was as follows:

1. How many people work in your sales department?
2. How much time does a typical sales process take time from start to finish?
3. Are you primarily a product or a solution sales organization?

4. How many people take part in a typical case? What are the roles of the participants?

5. How is the total time used for the case distributed between different participants?

6. Does the time distribution vary in the different stages of the sales process? In which parts is the role of non-salespeople the highest?

7. Do you wish to keep the roles of salespeople and technical experts apart or to develop hybrid employees who are fluent in both?

8. What problems commonly occur during the sales process? Does disagreement in sales roles cause problems?

3.1.2 Customer interview

The second round of interviews consisted of 6 interviews to Finnish companies that purchase software, i.e. customers of software vendors. The companies were chosen based on the critical nature of software in their business, meaning the organizations' core business processes are supported by software. The companies operated the domains of housing, media, logistics and travel. The sizes of the customer organizations changed from one smaller €50 million company to one large enterprise with revenues over €1 billion.

The employees that were interviewed were business directors and IT professionals. Two of the interviewees held the title of chief information officer and the others were business executives and business development directors. One of the interviewees had recently terminated his employment. All in all, each person had over 10 years of experience from IT and business development.

First, the interviewees were inquired what types of software they mostly procure - commercial off-the-shelf and configurable products or customized solutions that serve their specific business requirements. The interviewees were also asked to estimate their average software deal and the size of vendor they typically operate with. Finally, the interviewees were asked what type of sales team they prefer from a vendor and what kind of problems they have experienced.

The customer side interview questions were:

1. Do you predominantly purchase software products or customized solutions?

2. How large is your average software procurement in euros?

3. What is the size of a typical software vendor you purchase solutions from?

4. Do you prefer to operate with a single liaison (sales person) from the vendor company or a team of salespeople and experts?

5. What kind of problems you normally face with vendors? Do the problems arise from sales person incompetence?

6. What would be the optimal vendor salesteam (single person, or multiple people with different roles)?

3.2 Interview results

3.2.1 Vendor results

The original idea was to divide the interviewed vendors into segments by the complexity level of their software and whether they are a product or solution sales organization. This approach was abandoned since all of the companies employed both product and solution business models (some were entirely in the solution business having no products). The solutions' complexity ranged from stand-alone applications to massive integrated systems. No company names are presented here due to the fact that two of the interviewees wanted to remain anonymous.

To promote anonymity, no exact financial figures or other recognizable organizational data is introduced. The smallest company had annual revenues of slightly over 50 million euros while the biggest one was 10 times larger, selling over €500 million a year. The largest company employed 400 salespeople while the others each had a sales department of 15-20 people. All of the companies, except for one, were primarily in the software solution business. However, the one product organization was also transitioning towards a solution business model.

Obtaining definite answers regarding the sales team structure, the duration of the sales process and the roles of different employees in the sales process proved difficult. According to every interviewee, that data changes with several factors. Factors that affect the sales process duration and employee contributions include deal size, new vs. existing customer, complexity of the solution and private vs. public sector. The interviewees remarked that the total sales process can last from one month to over a year due to reasons listed here and illustrated in Figure 9.

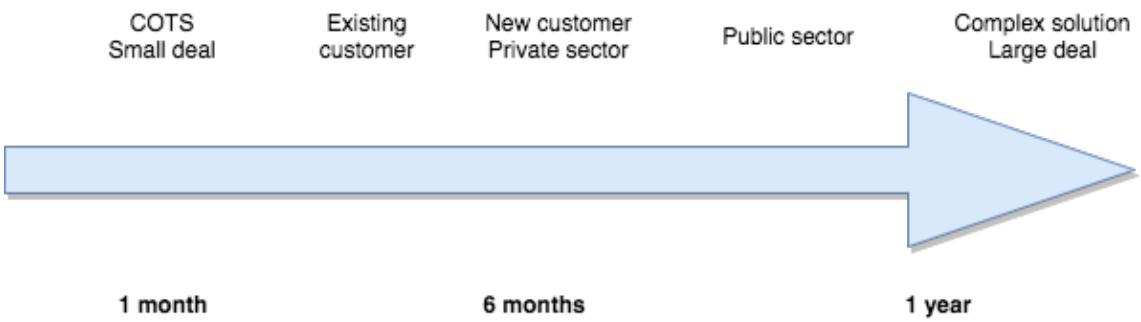

Figure 9: Factors affecting sales process length in software companies

The amount of time different employees use during the process also varies with the nature of the case, according to the interviewees. A sales manager (or key account manager) can handle the sale of a simple application sold to an existing customer while a larger deal and a complex solution require contribution from technical and business experts. As one interviewee pointed out, it is important that developers draft the workload estimates and design the architecture for systems that they will themselves develop. He argued that "it would not make sense for sales to produce the estimates since sales people are not responsible for reaching them." The expert's contribution level, in all interviewed vendors, was highest in the *proposal stage* of the sales process as it requires the most technical planning and software functionality design. A common guideline is that the sales manager manager initiates each deal and handles them singlehandedly until a customer need or problem has been found (as presented by Rackham et al. [32]). After need discovery, the sales manager recruits suitable experts from the company to participate in the sales process. The team then attempts to understand the customer's situation better and drafts a proposal.

An interesting finding, which was not covered in the background (section 2.4) of this thesis, was the use of employees called *domain experts*. Four of the six interviewees had domain experts working for their organizations. While a technical expert (architect or developer) specializes in the technical solution, the domain expert is responsible for mastering a certain industry (domain). The domain expert has a long experience of the industry (e.g. banking, logistics or retail) he or she specializes in and usually has a work background from it. He or she understands the domain's business models, knows the major companies that operate in the domain and is up to date with the industry's trends and opportunities. According to the interviewees, domain experts are valuable assets in the sales process as they profoundly understand the customer's industry, their competitors and the types of challenges the customer likely faces. On the other hand, the domain expert brings great value and substance to the customer conversation. Customers appreciate vendors that understand their industries and are able to bring valuable vision to the discussion. The vendors that utilized domain experts, used them throughout the sales process from the initial meeting to the end. One of the companies even had divided their sales department into domain sales and had a domain expert leading each division.

The vendor interview answers are summarized in Table 2.

Table 2: Summary of vendor interview answers

Question	**Summary of answers**
How many people work in your sales department?	Every company had a sales department of 10-20 employees except for the largest company which employed 400 salespeople. The sales function accounted for 5-10 % of the organization's total employees for each company.
How much time does a typical sales process take time from start to finish?	Varied in every case from one month to over a year. Reasons for shorter duration were: small deal, existing customer, COTS or otherwise simple application and private sector. Reasons for longer duration were: large deal, new customer, complex solution and public sector.
Are you primarily a product or a solution sales organization?	4 of the companies were entirely in the solution business. 1 employed both product and solution business models. 1 was primarily in the product business but wanted to transition towards solution sales.
How many people take part in a typical case? What are the roles of the participants?	4-8 people Sales manager, Sales executive, Presales, Bid manager, Account executive Technical expert, Senior developer, Architect, Designer *Domain expert* Service manager, Product owner, Project manager Business controller Legal
How is the total time used for the case distributed between different participants?	Varied in every case. Reasons for variation were deal size, new vs. existing customer and solution complexity. In larger and more complex deals, the experts had a stronger contribution. For a small deal or COTS, a sales manager can handle the whole process. Sometimes with existing customers, the development team working for the customer can conduct additional sales even without the assistance of sales or an account manager.
Does the time distribution vary in the different stages of the sales process? In which parts is the role of non-salespeople the highest?	The contribution level of experts is highest in the later stages of the sales process, especially in the *proposal stage*. Sometimes the role of the sales manager can be handled by the domain expert (two vendors employed this option).

Do you wish to keep the roles of salespeople and technical experts apart or to develop hybrid employees who are fluent in both?	In software solution business, especially when acquiring new customers, the sales process has to be a joint effort between sales people and technical+business experts. "It would be impossible for a single employee to handle the whole sales process." With account management, the account manager or even the development team can handle small additional sales singlehandedly. In product business, sales can be conducted by one person.
What problems commonly occur during the sales process? Does disagreement in sales roles cause problems?	Usually there is no disagreement over the roles. Sometime problems can occur if it is unclear who is in charge of the case (according to one interviewee).

3.2.2 Customer results

For the customer interviews, companies were selected based on the critical role of software in their business and the amount of new software procurement. Six companies that had an annual IT budget of approximately 5 % of their revenues were chosen. One of the companies was smaller with roughly 75 million euros in revenues while the largest one was a €1 billion corporation. The other four had revenues of 100-300 million euros. One of the interviewees had recently left his position as the business director of his previous employer. He was interviewed despite of this due to his several years of experience in the field of purchasing software. Again, two of the interviewees wanted to remain nameless, thus the customer interview results were kept anonymous as well.

Similarly to the vendor interviews, definite answers as regards to the customers' preferences were difficult to obtain. In almost every case, the answers depended on the nature of the deal and software but there existed some consensus amongst the interviewees. All of the interviewed customers elected to purchase COTS and configurable products when implementing core business systems such as enterprise resource planning and customer relationship management. On the other hand, the interviewees preferred to use customized solutions for more special cases like web and mobile applications. One of the interviewees was more product oriented, arguing that support of customize software is more complex since vendors do not always offer support for their own solutions. This person opted to purchase COTS software whenever possible as the support of a product is often included in its price. Product vendors typically offer comprehensive application support by themselves or through a third party [21].

One company developed most of their software in-house and employed their own development unit. They used outside developers as rented help in the development. A company like this is a typical customer of a resource vendor that was discussed in

subsection 2.3.3. Their preference of the vendor's sales team was different from the others. The interviewee from said company wanted to operate primarily with the vendor's developers and deal with a sales representative only on contract issues.

The companies' single procurement size ranged from 50 000 euros to over €1 million. The interviewees said that it is impossible to give a meaningful average since the deal size changes heavily with different types of software and business cases. Every customer worked with both large and small vendors usually with the same division: purchase critical business systems such as ERP and CRM from large suppliers and develop less critical applications with small vendors. The interviewees concurred that small vendors are easier to work with due to their agility and lack of bureaucracy while large companies bring more reliability because of their vast resources. One of the companies had a policy of working only with major Finnish and international suppliers.

When asked whether the interviewees preferred to operate with a single sales representative from the vendor or a sales team, all of them agreed that a team brings more credibility to the vendor. The customers argued that it is highly difficult for one sales manager to convince the customer of the solution's benefits while at the same time understanding its technological details. One of the interviewees stated: "The first meeting can be handled by a sales manager but the from the second meeting on (as the conversation turns into a more detailed level), the experts have to be involved. In the first meeting, the sales manager has to be able to separate the vendor from their competition. Achieving that, the sales managers receives a mandate for further conversations with the customer."

The interviewees had not experienced major problems with the incompetence of vendors' sales teams. The most common problem was that the sales team does not listen to the customer thoroughly and therefore fails to understand the customer's situation.

All in all, the customers (except for the in-house development company) concurred that the use of experts as additions to the vendor's sales team is paramount as it provides the vendor with more knowhow and credibility. A sales manager can initiate a new conversation but the experts have to be involved in an early stage to comprehensively understand the customer's situation, business and technology. Only then, can the vendor create a proposal that truly benefits the customer. The customer interview results are summarized in Table 3.

Table 3: Summary of customer interview answers

Question	**Summary of answers**
Do you predominantly purchase software products or customized solutions?	Varies with different software. Critical business systems such as ERP, CRM and are bought as COTS or configured products. Applications that are developed to a more special business need are customized. One interviewee preferred COTS for their better support. One company had an in-house development team that used outside developers.

How large is your average software procurement in euros?	Impossible to give a meaningful average. Varied with the complexity of software from 50 thousand euros to over €1 million.
What is the size of a typical software vendor you purchase solutions from?	Critical systems such as ERP, CRM are and bought from large vendors. Smaller customized applications are often bought from smaller vendors. Small and agile software firms are easier to operate with but sometimes the resources and reliability of a large corporation is needed.
Do you prefer to operate with a single liaison (sales person) from the vendor company or a team of salespeople and experts?	The first stages of the sales process can be handled by one sales manager, but the experts have to be included very soon after that as the conversation goes into a more detailed level. The use of a versatile team brings more credibility to a vendor.
What kind of problems you normally face with vendors? Do the problems arise from sales person incompetence?	No major problems have caused by sales manager incompetence. The most common problem is that the vendor's sales manager or team does not listen to the customer and therefore does not understand the customer's situation.
What would be the optimal vendor sales team (single person, or multiple people with different roles)?	The interviewee with the in-house development team preferred to operate with the sales people as little as possible. Others concurred that both a sales manager and experts are needed in the conversation with the customer. The expertise of a full team is needed to fully understand the customer and to create a proposal that benefits them.

3.2.3 Summary of the interview results

In conclusion, both the vendor and customer interviews support the idea of organizing a vendor's sales force into teams and utilizing the ample expertise of the software company in the sales process. A sales person (sales manager, account manager etc.) is responsible for the case and the assembling and organizing the sales team for each case. Technical experts are best utilized in the proposal stage of the sales process helping to conduct workload estimates and architecture design. A domain expert is a valuable employee that should be utilized throughout the sales process. The interviews did not yield a definite answer to what is the optimal distribution of labor between the participants in a sales case. Instead, we found out the distribution changes in every case according to deal size, software complexity and whether the customer is a new attempted prospect or an existing account. We will analyze one of these scenarios more thoroughly in chapter 4. Before that, we will present some additional concepts to support our analysis.

3.3 Additional concepts

Before continuing to the analysis part, we look into some additional research on B2B and software sales and develop some concepts we introduced in chapter 2 further. This subsection focuses on two points: the development from product to challenger sales and the extended model for the B2B sales process we defined in section 2.1.

3.3.1 From product to challenger sales

The evolution of business-to-business sales can be roughly divided into four styles based on the sales negotiation's style and customer's preference. Each one of these styles still exists today and can be successfully utilized. In this section, we look into the what kind of sales approach customer's want from vendors and how their preference has changed over time. The model and sales styles presented here are adapted from Dixon et al. [9]. The styles, in order from oldest to the most recent, are:

1. Promote
2. Solve
3. Give opinion
4. Challenge

The first style, *promote*, has been around basically since people and companies started selling. To put it simply, it means the promotion of the vendor's own product regardless of the person the product is being promoted to. Promotion is a form of advertising where the same marketing message is repeated to a vast number of potential buyers [9]. It does not take the customer's situation into account. Promotion works best with COTS-products that can be used by practically any person or company [9]. In software context, the promotion tactic is used mostly with consumer applications such as mobile apps and SaaS products. (Today however, most companies are performing targeted marketing with the help of the Internet and customer data collection [43]. Targeted marketing is more popular in B2C and therefore we do not examine it here in detail.)

Promotion's weakness is its impersonality, thus it is an ineffective tactic when the customer requires a customized solution. Especially in B2B software business, different companies' specific requirements and demands are often dissimilar and the same product cannot be marketed to every customer. The demand for custom solutions lead from product promotion to *solution sales*. A solution vendor has to listen to the customer situation, identify the customer's problem and *solve* the problem with a solution that best fits the situation. [9]

The change in customers' demand meant the vendors had to evolve from product to solution sales and start listening to what the customer needs. Subsequently, the customers' preference changed from just being listened to: customers opted to

work with vendors who, in addition to listening and solving, gave their own *opinion* on how to solve the client's problem [9]. In order for a vendor to be able to give a credible opinion, the company has to comprehend the customer's business and its rules and restrictions. This highlights the importance of learning the customer's business and industry (the interview results presented the idea of domain experts in section 3.2 and we will discuss the importance of understanding the customer's business more in subsection 3.3.2).

Dixon et al. [9] present one more step in the evolution of sales conversation, *challenging*. A challenger vendor not only gives opinions but challenges the customer's own opinions and ideas. According to Dixon et al. [9] this approach leads to stronger customer relationships and better deals for the vendor. However, the vendor should only challenge a customer with whom they have an existing relationship and even then it should be done delicately. Over aggressive challenging can lead to contamination of the relationship but if done in the correct manner, challenging is a highly effective sales tactic [9].

Figure 10 depicts the evolution of sales. This development indicates that succeeding in the customer conversation and separating from competition requires continuously more preparation, knowledge and vision from vendors. The customers want vendors to listen, give opinions and even challenge them and, at the same time, convincingly promote their own solutions and products. This places heavy expectations on the vendor's sales team.

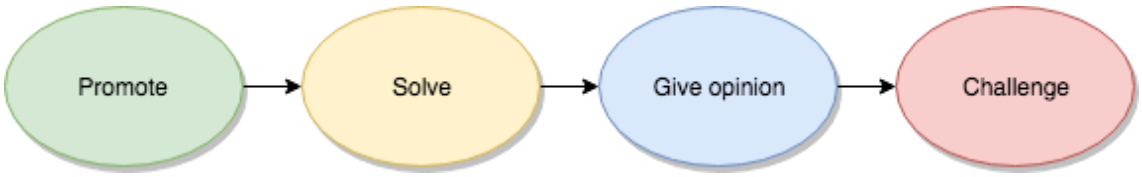

Figure 10: Evolution of sales

3.3.2 The extended model for B2B sales process

In section 2.1, we presented the traditional model for the B2B process. We also drew a flow chart of the steps a vendor goes through when attempting to acquire a new customer. The traditional model's weakness is that it only represents *half* of the activities that actually take place during the sales process. In order to construct the optimal sales team and find the suitable roles for each employee, we present a new and extended model of the process as illustrated in Figure 11.

The traditional model displays the activities that happen *in contact* with a customer but it leaves out the actions that take place *out of contact*. Out of contact activities are the actions vendor takes in between the meetings, phone calls, presentations and other conversations with the customer. All of these actions are preparation of some

kind but equally important to the success of a case than the in contact activities. In section 2.1, we presented the in contact steps of the process:

1. Prospecting
2. Initial contact
3. Meeting(s)
4. Request for Proposal (RFP)
5. Proposal
6. Closing the deal

Prospecting actually happens out of contact with the customer but the other five steps are done when in contact. The sales process is not complete without adding other out of contact activities which are (1) *preparation for a meeting*, (2) *building a proposal* and (3) *preclosing*. Adding all of these in contact and out of contact steps together, we obtain the extended (and complete) model for the B2B sales process that Figure 11 depicts (*Note: RFP can happen either in-contact or out-of-contact*).

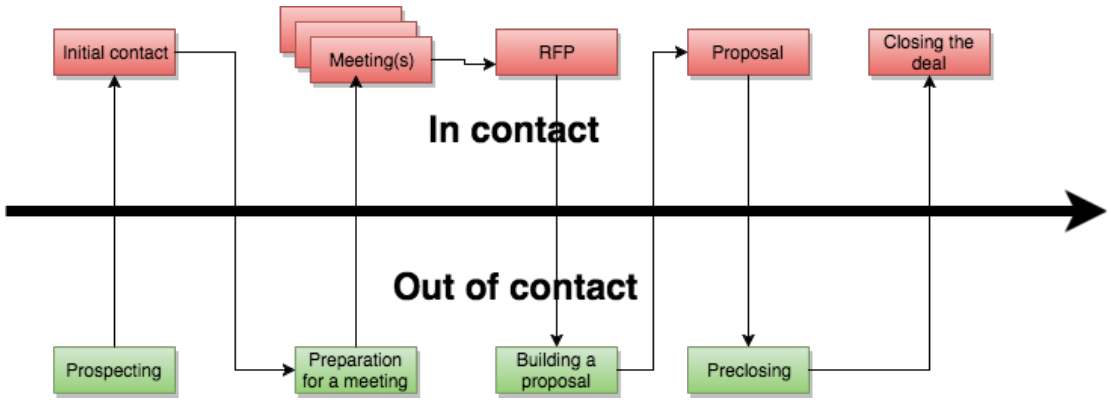

Figure 11: Extended model for B2B sales process

A vendor should *prepare* for each meeting with a customer but preparation is especially important before the first meeting with a new prospect. Thorough preparation is something customers not only expect but require from vendors. Before the Internet became widespread, information was not available in the same quantities it is today and sales managers did not have the opportunity of learning about the customer's organization beforehand. Back then, sales meetings started with the sales manager asking very basic questions about the customer's business. Today, however, all of the basic information is available in the Internet (Google, LinkedIn, national company registers and other sources) and the customer assumes that the sales manager has studied their organization and business in advance. A competent sales manager arrives to the initial meeting having learned this preliminary information. Below is a checklist of what a sales manager should (at least) know about the customer before the initial meeting:

- The person or people he or she is meeting (job title, position in the organization, background)
- The company's primary business model (primary sources of cash flow)
- The company's organizational structure
- The company's key financial figures
- The domain's trends and opportunities

Based on this information, the sales manager can form an opinion in advance of what the customer's situation might be. Thorough preparation results in three things: (1) the sales manager understands the customer better, (2) the conversation can rapidly turn to the client's situation and (3) the customer appreciates that the sales manager arrives prepared and will be more receptive from the beginning.

The third out of contact step (1. prospecting, 2. preparation for a meeting) is *building a proposal* which takes place in between receiving the RFP and presenting the proposal to the customer. As we found out in the interviews (section 3.2) and will discuss more in chapter 4, the contribution of a software company's non-sales personnel is the highest in this stage. The proposal must answer the customer's RFP thoroughly and clarify how the proposed product or solution will benefit the customer. The structure and contents of a proposal can be very different in various cases. Here, we list the sections a proposal for *a software solution project* should have:

1. Background and executive summary
2. The customer's situation and solution objectives (what the customer attempts to achieve with the new solution)
3. Non-technical specification of the solution (use cases and functionalities)
4. Technical specification and architecture
5. User interface prototype (if possible to draw)
6. Project team (personnel and responsibilities) and schedule
7. Workload and cost breakdown
8. Benefits to the customer (*return on investment* (ROI))
9. Vendor information and references (examples of previous similar projects)
10. Contact information and proposal expiration date

The extent of the aforementioned sections varies in every case, but regardless, building the proposal is almost always the most laborious part of the sales process. After the vendor's team has built the proposal and presented it to the customer the two companies should agree on a decision date. This is the time when the customer ultimately decides whether to accept the vendor's proposal. Vendors call this time between the presentation and decision and the activities that happen during it, *preclosing*. Preclosing activities all have the same objective: helping the customer to make an informed decision (vendors obviously hope the decision will be a "yes"). The vendor can, for example, perform additional research that helps the customer's decision or simply set up a phone call or lunch meeting to discuss the proposal further. This step is often neglected as vendors are careful not to disturb the customer in their decision making process. However, preclosing is highly important to vendors as it keeps the vendor and their proposal in the customer's thoughts.

So far, in chapters 2 and 3, we have presented literature based background information and empirical research findings for the optimal sales team structure. In the next section, we will utilize this knowledge and build the optimal sales team in one business and technology scenario.

4 Building the optimal sales team

4.1 Intro

We have learned that the optimal structure of a software sales team varies heavily depending on several factors, including deal size, different software types and the nature of the vendor's relationship with the customer. We have also found out from the interviews that both IT vendors and customers prefer the approach of using sales teams (consisting of sales personnel and experts) as opposed relying on a single sales representative. As we discussed in section 3.3, completing a sales process for new customer acquisition takes a lot of work and requires comprehensive understanding of technology and the customer's business and domain. In addition, according to Dixon et al. [9], challenging the customer in the sales conversation yields optimal results and customer satisfaction. Therefore, the vendor's sales team has to process a vast amount of information and be competent in both business and technology. Concentrating all of these capabilities into one person would be a difficult task.

The first research question, *How is the optimal sales team constructed using the diverse expertise of a software company's employees?* is still difficult to answer. As discussed before, the contribution level of experts is the lowest in the prospecting and initial contact stages of the sales process and reaches its peak when the vendor starts building a proposal for the customer. However, the exact level of contribution (work hours spent with the case) changes in every business and technological scenario.

In this section, we will utilize our benchmarks to estimate the exact contribution levels of each employee that participates in the sales process in one of the scenarios. To get the most comprehensive understanding, we choose a scenario where the vendor and customer have no previous relationship (new customer acquisition), the customer requires a customized software solution (solution business) and the deal has major monetary value (over €100 000). We are going to use a fictitious vendor (SoftCorp Inc.) and customer (Acme Inc.).

4.2 Case description

SoftCorp Incorporated is a Finnish software company that develops customized solutions and provides consultancy services to large and middle-sized companies. The company's solutions include web services, mobile applications and application integration. SoftCorp provides its customers with end-to-end solutions from the technical architecture and user interface design to software development, testing and support. The company does not have a product portfolio, every customer solution is customized.

SoftCorp's key financial figures are:

- Employees: 100

- Revenues: €30 million
- Operating profit: €5 million

SoftCorp employs a total of hundred people of whom the majority are technical experts. The 80 employee technical staff consists of 60 developers, 8 architects, 7 project managers and 5 UX/UI (user experience / user interface) designers. The company's sales department has 15 people with a sales director, 7 sales managers, 5 domain experts and a 2 employee presales function. In addition, SoftCorp has a management, finance and legal staff.

Acme Incorporated provides maintenance and clean-up services for its customers' equipment and facilities which include heavy transportation vehicles (trains, ships etc.), large warehouses and logistics centers. Acme is a Finnish based company but operates globally in three different continents.

Acme's key financial figures are:

- Employees: 1000
- Revenues: €400 million
- Operating profit: €25 million

Acme is considering to purchase a new enterprise mobility solution that is expected to make the work of their maintenance personnel safer and more effective. They want to equip each maintenance employee with a mobile device and an application that would allow the employee to report new maintenance targets and locate reported failures to fix them. The system is planned to replace the old paper form based reporting system and make the maintenance process more reliable and effective. The new system has to have a real-time integration with Acme's ERP and workshift planning software.

SoftCorp has had no previous dealings with Acme but has learned about their consideration and decides to contact Acme hoping to discuss the venture with them.

4.3 Sales process

4.3.1 Preface

SoftCorp's utilizes the best practices discussed in this thesis. They pay attention to the meeting preparation and other out of contact activities as presented in subsection 3.3.2. SoftCorp also exploits the full resources of the company in the sales process including experts. A sales manager takes the lead of the case and is responsible for organizing and managing the sales team. The company also utilizes their own domain experts in preparation and business conversations with the customer. The contribution level of technical experts is highest in the later stages of the sales process.

As we go through the sales process, we keep track of several variables. We record

the amount of work committed by each employee in different parts of the process. In addition, we denote the overall elapsed time with t (weeks). The employee workloads are gathered in an excel sheet (template in Figure 12). The workloads are represented in work hours (one work day = 7,5 work hours [13]). For simplicity, we limit the number of follow-up meetings to one, i.e. the process consists of two meetings before the Request for Proposal.

	Presales	Sales manager	Domain expert	Architect	Developer	Designer	Project manager	Total workhours
Prospecting and initial contact								
Preparation for the initial meeting								
Initial meeting								
Preparation for the second meeting								
Second meeting								
RFP and building a proposal								
Proposal presentation								
Preclosing and closing								
Total workhours								

Figure 12: Employee workloads during the sales process (work hours)

4.3.2 The process

Prospecting and initial contact
SoftCorp's pre sales function initiates the sales process at time t. They generate a new lead, Acme Inc., to the company's CRM. Acme has not responded in any of SoftCorp's inbound marketing channels, thus the sales department decides to contact Acme themselves. SoftCorp's sales manager contacts Acme's business development director via telephone (at $t + 1$ weeks) and proposes a meeting. During the initial contact, the sales manager explains to the director what SoftCorp does and suggests a discussion for new business development ideas. With Acme's new venture in mind, the business development director agrees to the meeting. It is set to take place in $t + 4$ weeks.

Prospecting and marketing is an on-going activity and its workload is divided between different prospects. SoftCorp's presales function uses approximately three hours for prospecting Acme and creating targeted marketing content. The sales manager uses 0,5 hours to contact Acme, set up the meeting and initiate the sales process.

- Pre sales: 3 hours (cumulatively 3 hours)
- Sales manager: 0,5 hours (cumulatively 0,5 hours)
- Total sales process time: 1 week

Preparation for the initial meeting
The next in contact step is the initial meeting but before that, SoftCorp does a thorough preparation. Presales creates a preparation package for the sales manager that includes:

- Acme's business development director's background information

- Business overview of Acme (business model and organization)
- Financial review of Acme
- Acme's existing software and technologies
- The maintenance domain's trends and opportunities

One of SoftCorp's domain experts has previously worked for a maintenance company similar to Acme and assists presales in the preparation. Before the meeting at $t + 3$ weeks, the sales manager and domain expert review the preparation package. They conclude that Acme is a highly potential prospect and domain knowledge will be valuable in the initial meeting. Therefore, they decide that the domain expert will attend the meeting with the sales manager. At this stage, SoftCorp's presales and domain expert both use two hours to build the preparation package and the domain expert and sales manager each take one hour to review it.

- Pre sales: 2 hours (cumulatively 5 hours)
- Sales manager: 1 hour (cumulatively 1,5 hours)
- Domain expert: 3 hours (cumulatively 3 hours)
- Total sales process time: 3 weeks

Initial meeting
In the initial meeting, the domain expert opens up the conversation with by presenting his opinion of what are the major trends of the maintenance industry. The sales manager then holds a brief presentation about SoftCorp's business and previous projects. Acme's business development director is convinced by SoftCorp's thorough preparation and the reference customers they present. She feels comfortable to discuss Acme's desired enterprise mobility venture with the vendor. In conclusion, both parties agree that there is a need for further discussion. They arrange a follow-up meeting which will be attended by a technical expert from both companies. The second meeting is set to take place in $t + 6$ weeks. The initial meeting lasts an hour.

- Sales manager: 1 hour (cumulatively 2,5 hours)
- Domain expert: 1 hour (cumulatively 4 hours)
- Total sales process time: 4 weeks

Preparation for the second meeting
The sales manager and domain expert return to their office and start preparing for the next meeting. They want to attend the follow-up meeting with clear opinion on how to solve the situation. The sales manager recruits one of SoftCorp's architects to assist in the preparation. They draft two lists of questions for Acme, (1) business requirements and restrictions of the new solution and (2) Acme's current software architecture and its possible limitations. Finally, they create an initial solution idea for Acme's situation. The sales manager and domain expert each commit three hours to the preparation of the second meeting while the architect commits one hour.

- Sales manager: 3 hours (cumulatively 5,5 hours)
- Domain expert: 3 hours (cumulatively 7 hours)
- Architect: 1 hour (cumulatively 1 hour)
- Total sales process time: 5 weeks

Second meeting
SoftCorp decides to bring three employees to the second meeting: the sales manager, the domain expert and the architect. This meeting is agreed to last for 2 hours since they wish to discuss the case in more detail. Present from Acme's side are the business development director and their technical architect. Acme's employees answer SoftCorp questions and the vendor presents their initial solution idea. The business development director reveals that they are meeting with other vendors as well and will be approaching all of them with a written request for proposal after they have a better understanding of their demand. SoftCorp agrees to wait for the RFP.

- Sales manager: 2 hours (cumulatively 7,5 hours)
- Domain expert: 2 hours (cumulatively 9 hours)
- Architect: 2 hour (cumulatively 3 hour)
- Total sales process time: 6 weeks

RFP and building a proposal
The request for proposal arrives in $t + 12$ weeks, six weeks after the second meeting. The sales manager and domain expert review the RFP and the sales manager recruits a team of experts to construct their proposal. The participants of the team are the domain expert and architect who were present in the second meeting and, in addition, a senior software developer, a designer and a project manager. The sales manager acts as a team leader. The RFP's deadline for leaving the proposals is in $t + 17$ weeks.

SoftCorp decides to propose an agile software development project to create Acme's mobile solution. The sales manager creates a table of contents for the proposal and fills in the background information, Acme's situation overview, vendor information and projected benefits for Acme. He consults the domain expert to get industry specific information to the proposal. The sales manager also recruits the designer to draft an outline of the mobile application's user interface.

The architect and developer design the functionality of the mobile application and the integrations to Acme's core systems. They also select suitable technologies to use in the development project. The functionality and architecture of the solution will not be explicitly specified before the project, following agile development methodologies, as discussed in subsection 2.4.3. The initial planning is performed to estimate the workload of the actual project. Additionally, they plan a timetable for the project

with the project manager.

SoftCorp submits the proposal one day before the deadline. Acme receives the proposals and informs the vendors that they will take time to review all of them. They will then invite the most prominent vendors to present their proposals and discuss the case further. As we found out in chapter 3, building the proposal is clearly the most time consuming phase in the sales process. The employee contributions in this stage are:

- Sales manager: 12 hours (cumulatively 19,5 hours)
- Domain expert: 6 hours (cumulatively 15 hours)
- Architect: 15 hours (cumulatively 18 hours)
- Developer: 15 hours (cumulatively 15 hours)
- Designer: 8 hours (cumulatively 8 hours)
- Project manager: 4 hours (cumulatively 4 hours)
- Total sales process time: 17 weeks

Proposal presentation
SoftCorp is among the vendors selected to present their proposal. The presentation will last for one hour and is going to take place in $t + 19$ weeks. The proposal presentation is attended by the sales manager, the domain expert and the architect as they are the part of the sales team the customer knows. From Acme's side present are the business development director that initiated the project, the chief information officer and the CEO. The sales manager is responsible for presenting SoftCorp's proposal and the two expert will complement with their business and technical knowledge. After the presentation, Acme informs SoftCorp that they have been selected for the final shortlist of two vendors and that the customer will make their final decision in $t + 22$ weeks.

The workloads of the proposal presentation with its preparations are:

- Sales manager: 5 hours (cumulatively 24,5 hours)
- Domain expert: 2 hours (cumulatively 17 hours)
- Architect: 2 hours (cumulatively 20 hours)
- Total sales process time: 19 weeks

Preclosing and closing
Acme wishes to make their decision in their solitude, thus the vendors do not have the opportunity of setting up a meeting for the decision date. However, they do have the possibility for preclosing that was discussed in subsection 3.3.2. The sales manager

conducts this stage singlehandedly. He sends Acme's business development director e-mails containing information about new technologies and SoftCorp's previous projects. The sales manager also sets up a call between the business development director and one of SoftCorp's old customers for reference. The preclosing stage takes three hours of the sales manager's time.

- Sales manager: 3 hours (cumulatively 27,5 hours)
- Total sales process time: 21 weeks

Decision
After $t + 22$ weeks, Acme's decisions arrives: They decide to go into business with SoftCorp. The two companies still have to negotiate a contract, which employs the sales manager and SoftCorp's legal department, but we end our examination of the sales process to a verbal approval of SoftCorp's proposal.

The final agreement between the two companies is a time and material project to develop Acme's new enterprise mobility solution. As discussed in subsection 2.3.2, a time and material project does not have a fixed price but Acme and SoftCorp agree on a target cost of €300 000 which equals to roughly 365 workdays at SoftCorp's hourly rate. The sales process is over after 22 weeks and contribution from 7 of SoftCorp's employees.

4.3.3 Case by numbers

SoftCorp agreed on a new project delivery for a new customer, Acme Inc. after a full sales process from prospecting to closing the deal. The sales process lasted for in total 22 weeks and 7 of SoftCorp's employees contributed during the process. The business and technological scenario was:

- Large, privately owned (and privately traded) customer organization
- Middle-sized software vendor
- No existing relationship between vendor and customer
- Major monetary value (€300 000)
- Complex technology (custom solution, web and mobile, over 500 users, real-time integrations to other systems)

The total work committed by all members of SoftCorp's sales team to the case was 96,5 work hours (12,9 work days). By far the most laborious stage of the sales process was *building the proposal* that took in total 60 work hours which was 62 % of the total workload. The sales manager committed the most work hours, with 27,5, followed by the architect (20 hours) and the domain expert (17 hours). The non-salespeople contributed the most in the out of contact stages of the sales process (preparation for a meeting and building a proposal). The employee workloads in each stage were

collected to an excel sheet shown in Figure 13.

	Presales	Sales manager	Domain expert	Architect	Developer	Designer	Project manager	Total workhours
Prospecting and initial contact	3	0,5						3,5
Preparation for the initial meeting	2	1	3					6
Initial meeting		1	1					2
Preparation for the second meeting		3	3	1				7
Second meeting		2	2	2				6
RFP and building a proposal		12	6	15	15	8	4	60
Proposal presentation		5	2	2				9
Preclosing and closing		3						3
Total workhours	5	27,5	17	20	15	8	4	96,5

Figure 13: Employee work hours in each stage of the sales process

4.3.4 Case analysis and conclusions

The fictional case with all of its parameters and workloads was based on the expert interviews and additional concepts presented in chapter 3. Therefore, the contribution levels of the experts were set to be the highest in the out of contact stages of the sales process. It is reasonable that most of the sales work is done out of contact which underlines the limitations of the traditional B2B sales process model. Contemporary software purchasers are more knowledgeable and better informed and competition is fiercer. This places high expectations on vendors and highlights the importance of thorough preparation for each contact with a customer. In this case, 85 % of the sales process was done out of contact (the preparation for the proposal presentation happened out of contact). The 15 % of the hours the team spends in contact with the customer is when they have to be on full alert and on their best performance. Therefore they spend the 85 % of time preparing those in contact moments.

The sales manager who was in charge of the sales team and the whole process contributed the most work hours but the technical experts, especially the architect, were largely involved as well. Using the division between business and technological staff we presented in section 2.4, the business staff consisted of the presales, sales manager, domain expert and project manager. The technological personnel were the architect, developer and designer. The domain expert was not mentioned in section 2.4 but is considered to be one of the business employees. The business staff used 53,5 work hours (55 % of total workload) to the case and the technical staff worked for 43 hours (45 %). The domain expert's contribution was 18 % of the total workload.

This section presented the results of the thesis' empirical research. The proposal stage (building, preparation and presentation) is clearly the most laborious part of the sales process and it also involves the most contribution from experts. Overall, as customers have high expectations towards vendors (and even want to be challenged in their own thinking), preparing for the in contact activities is extremely important for vendors. It is reasonable to assume that, as in this case, the out of contact activities account for over 80 % of the total sales process workload.

5 Discussion

5.1 Assessment of results

The interview results regarding the optimal sales team structure were not surprising. The assumption was from the beginning that the role of experts should be the highest in the late stages (especially building the proposal) of the sales process. Definite results that would fit all scenarios were difficult to obtain since the sales team construction is highly different in each scenario. It seemed feasible to take one scenario under closer examination and leave the rest for future research. It also seemed reasonable to analyze the most complex scenario to get the most comprehensive point of view. A vast software solution that comprises different devices (computers and mobile devices) and is integrated to other systems is a typical case in modern software development.

The interviewees were business, sales and IT directors from large and middle-sized Finnish corporations and therefore had extensive knowledge about the software industry. All of the interviewed experts had worked in the domain for over 10 years. Using a qualitative approach and semi-structured interviews proved out to be the most feasible kind of study as we found out that quantitative data was difficult to collect. The experts concurred that exact estimates for employee sales contributions are almost impossible to give since the experts' workloads were anything between 0 % and 50 % depending on the case. None of the interviewees collected data of the contribution levels (work hours) and indicated that even if they were, they would be reluctant to publish that data.

The interview answers were similar to a great extent. All of the sales directors wanted to involve the experts in the sales process and utilize them in designing software architecture and UI. The customers also preferred to work with a diverse sales team and not a single sales manager. Most of the vendors utilized domain experts in their sales process. Including the names of the companies and the interviewees would have brought more credibility to the results but since some of the experts chose to remain nameless the list of interviewed people was not published.

In section 3.3 we presented some additional and complementary concepts. Firstly, this brought up the idea of *challenger sales* based on the work of Dixon et al. [9]. The book by Dixon et al. [9] is not written by an academic research entity and should therefore be studied more critically. However, the results that the book presents are based on studying the best practices of thousands of sales organizations [9] meaning the outcomes have been tested in the real world. Understanding the evolution of sales more thoroughly and performing a quantitative model for the concept of *challenger sales* would be an interesting target for future research.

In addition, we presented the extended model for the business-to-business sales process in section 3.3. This model was based on the author's own experience and

therefore had no academic benchmark. Using the author's own findings was necessary as the out of contact stages of the sales process are important to realize and no prior research was found on them. All in all, limited academic research is found in the field of B2B sales.

5.2 Evaluation of the case analysis

A fictional sales process was used to present the findings in the analysis part of the thesis (chapter 4), as there was no data available from an actual sales case. The case was constructed using the best practices found in the expert interviews. An optimal sales team was built for a certain business scenario based on those real world results.

Obviously, it would have been interesting to follow a real world case and analyze the sales process duration and employee contribution data. However, this would have required a long screening process of a company as new customer acquisition in the software industry typically takes 6-12 months. Also, as discussed before, companies are reluctant to publish this data. Regardless, this would be an interesting field of research in the future.

5.3 Exploitation of results

The results found in this thesis can be used as guidelines to develop sales processes and sales best practices by software vendors. The findings can also be applied by other companies in the B2B solution business (not only IT). All in all, the research does not rely heavily on academic theory and primarily draws results from the real world. Therefore, the results should be valuable for several organizations' sales development.

This thesis left out the examination of public sector procurement due to its different nature from the private sector. The results are therefore not directly applicable to companies that operate in the public sector. Furthermore, this research was done in Finland and its results are based on the Finnish market, culture and customs. For example in the US, B2B business is heavily based on referrals, meaning that vendors cannot contact new prospects without an introduction from another company or person [36]. In conclusion, the use of these results in the public sector and outside of Finland should be done with adjustments.

5.4 Future research opportunities

The software business and B2B sales have been a target of little academic research in the past. It would be interesting to perform further research in these fields and try to create new quantitative models for B2B sales development. One important subject that this thesis touches on, is sales profitability, i.e. what is the cost of sales for a vendor versus the value of the acquired customer. Almost every company monitors the success of sales by, for instance, average deal size per sales person, hit rate

and number of activities per person [39] but the profitability of sales is often neglected.

The profitability aspect is especially interesting when experts are used in the sales process. When an expert contributes to sales, the company is losing both the expert's salary and the hourly rate he or she would otherwise be charging a client. As this thesis shows, experts are need in sales - but they also are the primary source of the company's revenue. A good future research objective would be to create a quantitative model for *how much time should experts use for sales, in order for the company to maintain optimal profitability.*

6 Conclusions

The purpose of this thesis was to discover the optimal sales team structure for a software company, taking into account all of the company's employees (including sales and technical staff). The primary research question was, *how is the optimal sales team constructed using the diverse expertise of a software company's employees?* The thesis also attempted to find out what types of sales teams customers prefer and should software companies use experts in the sales process to begin with.

The primary research method was a two phase semi-structured interview process that targeted Finnish software dealers (vendors) and buyers (customers). A total of 12 interviews were performed, six interviews to the vendors and six to the customers. In addition, a literature review and the author's own experience were used for benchmark. The analysis was presented by going through a fictional sales process with a software solution vendor and its newly acquired customer.

No definite answer was found for the primary research question. According to the interview results, there are numerous variables in software business that radically affect the optimal sales team structure. However, we were able to find some guidelines and best practices for sales process development. All of the interviewees concurred that the usage of experts is necessary in the sales process to assists the sales personnel.

A consensus among the interviewees was that the expert contribution level in the sales process should be the highest when building a customer proposal. This stage often involves designing software architecture and estimating project budget and workload which requires technical expertise. The interviewed customers wanted vendors to involve their experts in the RFP and proposal stages when the conversation turns into more detail. The case analysis in chapter 4 underlines the limitation of the traditional B2B sales process model. Most of the work (by sales and experts) takes place out of contact with the customer. Therefore it is highly important to utilize the extended model for the B2B sales process that we presented in subsection 3.3.2.

One of the main findings was that several interviewed vendors use *domain experts* in the sales process. A domain expert is familiar with the business models, companies, legislation and trends of a certain industry. The expert holds valuable industry knowledge which helps the vendor better understand the customer's situation. At the same time, customers appreciate a vendor that is fluent in the client's domain. A potential challenge is maintaining the domain knowledge; vendors can either recruit senior industry professionals (or external consultants or develop domain experts from their own staff. The first option is more expensive but yields quicker results while the second alternative takes a longer time but is more sustainable.

The results found in this thesis brought up interesting aspects for vendors to consider and develop in the future although we did not find an absolute model for the optimal sales team structure. In future research, it would be compelling to develop a quan-

titative model to estimate the optimal sales team construction in varying business scenarios. This model could be combined with the concepts of challenger sales and the extended B2B sales process. Future research could help software companies (and other B2B solution vendors) systematically develop their sales processes.

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